MOTOROLA SOLUTIONS

CERTIFICATE 2518.08

SAMM 825

MOTOROLA PENANG ADV. COMM. LABORATORY
Motorola Solutions Malaysia Sdn Bhd,
Plot 2A, Medan Bayan Lepas,
Mukim 12 S.W.D, 11900 Bayan Lepas,
Penang, Malaysia.

FCC / ISED TEST REPORT

Report Revision : Rev.A

Date/s Tested	:	30-April-2024 - 8-May-2024
Report Issue Date	:	21-May-2024
Manufacturer/Location	:	Motorola Solutions Malaysia Sdn Bhd
Manufacturer Address	:	Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia
Requestor	:	CHUA YING YING
Product Type	:	Hand-held
Product Marketing Name (PMN)	:	Curve
Hardware Version Identification Number (HVIN) (Tested Model)	:	DLR110NBHLAA (HVIN:DLR110NB1)
Hardware Version Identification Number (HVIN) (By Similarity Model)	:	DLR110NBHLAB (HVIN:DLR110NB2)
Frequency Band	:	902 - 928 MHz
Max RF Output Power	:	1 Watt
Applicant Name	:	Motorola Solutions Inc
Applicant Address	:	Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia
Firmware Version Identification Number (FVIN)	:	R01.03.01
FCC Registrations	:	461337
ISED Registrations	:	MY0001

The equipment was tested accordance to the requirement listed below:

FCC 47 CFR Part 15C **ISED RSS-GEN Issue 5 / 247 Issue 3**	**PASS**

Prepared By:

Siti Nurhidayati Binti Abdul Halim
Test Personnel

Approved Signatory:

Vincent Foong Chuen Kit
Responsible Engineer

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	**21-May-2024**	**Hidayati**

1.0. General Information

EUT Description:

Technologies	900MHz ISM
TX Frequency range	902MHz – 928MHz
Modulation Type	8FSK
No of Hopset	10
No of Channel Per Hopset	50
Input/Output	RF port
Connector type	PROGRAMMING
Antenna type	Helix Fixed Antenna
Antenna Gain	5.25 dBi

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
BATTERY PACK, BT110 BATTERY PACK, BATT LIION 2500T	MOTOROLA	PMNN4578A
CURVE SUC TRAY	MOTOROLA	PMPN4586A

General Description of Applied Standards
The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

ANSI C63.10-2013

No modifications were done to the UUT to facilitate the tests in this report.

Deviation from standard
Not applicable as no deviation from standard test method

2.0. Summary of Test Results

FCC Clause	IC Clause	Test Item	Result	Remarks	Serial number	Tested by
15.247 (b)(2)	RSS-247 5.4(1)	Conducted RF Output Power (Peak) & EIRP Measurement	Pass	Highest output power: 29.59dBm (0.91W)	19222AE6998	Hidayati
15.247 (a)(1)	RSS-247 5.1(3) RSS-247 5.1(2)	(1) 20dB Channel Bandwidth (2) Channel Separation	Pass	Highest 99% OCB: 26.143kHz (26K1F1D)	19222AE6998	Hidayati
15.247(a)(1)(i)	RSS-247 5.1(3)	Number of hopping Frequency used	Pass	NA	19222AE6998	Hidayati
15.247(a)(1)(i)	RSS-247 5.1(3)	Dwell time on each channel	Pass	NA	19222AE6998	Hidayati
15.247 (d)	RSS-247 5.5	Band Edge Conducted Spurious Emission	Pass	Worst case emission: -40.87dBm	19222AE6998	Hidayati
15.247 (d)	RSS-247 5.5	Conducted Spurious Emission	Pass	Worst case emission: -37.107dBm	19222AE6998	Hidayati
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	Pass	Worst case emission: 38.6448 dBuV/m (margin: 15.3552dB)	19222AE6980	Rezza & Nazrin
15.207	RSS-Gen 8.8	AC Powerline Conducted Emission	NA	Testing is not required, radio shall turn off during charging mode	NA	NA

3.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.43
Radiated Emissions up to 1 GHz	30MHz ~ 1000MHz	5.88
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.84
	18GHz ~ 40GHz	6.02
Conducted Spurious Emission	9kHz ~ 12.75GHz	2.82

4.0. Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.12)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
CHAMBER	SH-641	92003820	18-Jul-23	18-Jul-24
POWER SUPPLY	6652A	3541A02371	18-Jul-23	18-Jul-24
SPECTRUM ANALYZER	E4440A	MY46185415	5-Jan-24	5-Jan-25

Radiated Emission Station (SW Version: EMC FCC RE v1.6.5)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	1143	08-Mar-23	08-Mar-25
DRG HORN FREQ.	SAS-571	720	18-Apr-23	18-Apr-25
DC Power Supply	NR973A	MY54180189	30-Aug-23	30-Aug-24
SIGNAL GENERATOR	SMB 100A	182511	4-Jun-21	4-Jun-24
EMI TEST RECEIVER	ESW44	101731	11-Aug-23	11-Aug-24
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	No Cal. Req'd	No Cal. Req'd
BILOG ANTENNA	CBL6112B	2950	14-Dec-23	14-Dec-24
BILOG ANTENNA	CBL6112B	2964	25-Sep-23	25-Sep-24
DATA LOGGER THERMOHYGROMETER	SDL500	A.016800	21-Jun-23	21-Jun-24
SYSTEM CONTROLLER	SC104V	050806-1	No Cal. Req'd	No Cal. Req'd
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	No Cal. Req'd	No Cal. Req'd
ANTENNA POSITIONING TOWER	TLT2	NA	No Cal. Req'd	No Cal. Req'd
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170143	28-Aug-2023	28-Aug-2024
PREAMPLIFIER 18-40GHz	Miteq Hi Gain Sucoflex	002	No Cal. Req'd	No Cal. Req'd
PREAMPLIFIER	PAM-0118P	269	28-Jun-23	28-Jun-24
LOOP ANTENNA	6502	00208416	26-Oct-23	26-Oct-24

5.0. Test Mode Applicability and Test Channel Detail

Radiated Emission Test (Above 1GHz)

☒Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒Following channel(s) was (were) selected for the final test as listed below.

Radiated Emission Test (Below 1GHz)

☒Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Total Channel	Tested Channel	Modulation Technology	Modulation Type	Tested by	Environmental Conditions
Test Mode	1 to 500	Hopset 1: 1, 26 Hopset 10: 50	FHSS	8FSK	Rezza & Nazrin	23.5°C, 69.6%RH

Power Line Conducted Emission Test

☐Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☐Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Tested by	Environmental Conditions
Application Mode	1 to 500	AUTO	FHSS	AUTO	NA	NA

Antenna Port Conducted Measurement:

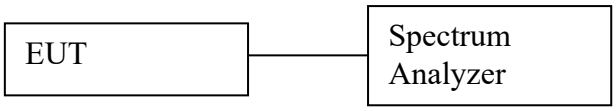
☒This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Total Channel	Tested Channel	Modulation Technology	Modulation Type	Tested by	Environmental Conditions
Test Mode	1 to 500	Hopset 1: 1, 26 Hopset 10: 50	FHSS	8FSK	Hidayati	25°C, 50%RH

6.0. Transmitter Test Parameters

6.1. Conducted RF Output Power (Peak) and E.I.R.P Measurement

6.1.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and set EUT to transmit in hopping disable mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = > 20 dB bandwidth
   b. VBW = RBW
   c. Detector mode = Peak
   d. AMPLITUDE → Scale/Div = 10 dB
   e. Trace = Max hold
   f. Sweep = auto
e) Measure the captured power within the band and recording the plot.
f) Repeat above procedure with different channel frequency of operation.

6.1.2. Test Limits

Normal Condition (25 º C)
Peak Output Power : < 1W (or 30dBm); E.I.R.P: < 4W

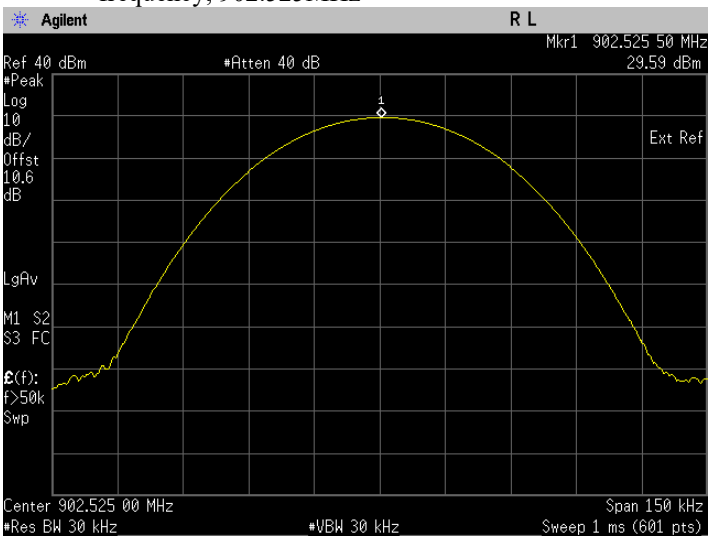
6.1.3. Test Data

Antenna Gain: 5.25dBi

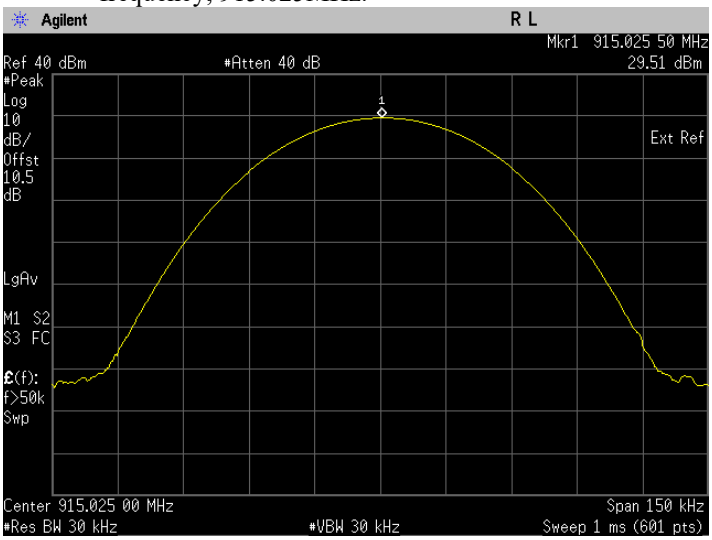
Test Conditions		Test Frequency (MHz)	Peak Output Power			E.I.R.P.		
Modulation	Voltage(V)		dBm	Watt	Status	dBm	Watt	Status
8FSK	3.70	902.525	29.59	0.91	Pass	34.84	3.05	Pass
		915.025	29.51	0.89	Pass	34.76	2.99	Pass
		927.475	29.59	0.91	Pass	34.84	3.05	Pass

**Note: EIRP = PT +GT – LC, PT = Transmit Output Power, dBm
GT = Antenna Gain, dBi
LC = signal attenuation, dB1

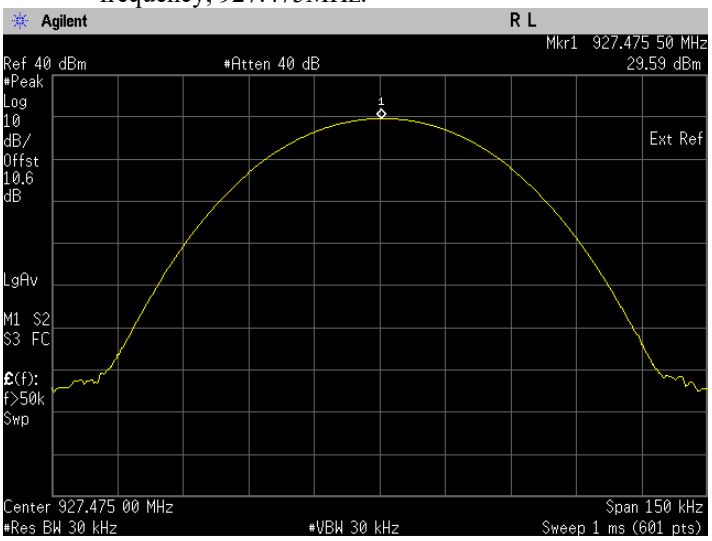
i. The Conducted RF Output Power test with result at low frequency, 902.525MHz



ii. The Conducted RF Output Power test with result at mid frequency, 915.025MHz.

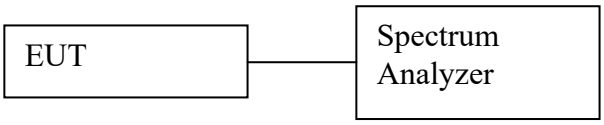


iii. The Conducted RF Output Power test with result at high frequency, 927.475MHz.



6.2. 20dB Channel Bandwidth

6.2.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and set EUT to transmit in hopping disable mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 1 kHz
   b. VBW = 3 kHz
   c. SPAN = 130kHz, center on test frequency
   d. AMPLITUDE → Scale/Div = 10 dB
   e. Detector mode = Peak
   f. Trace = Max hold
   g. Sweep = auto
e) Measure 20dB & 99% Bandwidth and record as the emission bandwidth.
f) Save the plot result from spectrum analyzer screen.
g) Repeat above procedure with different channel frequency of operation.

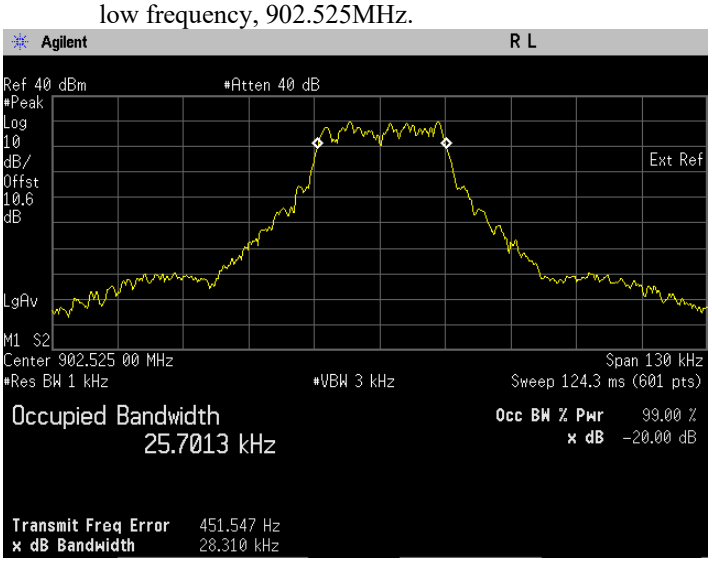
6.2.2. Test Limits

Normal Condition (25 º C)
For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies

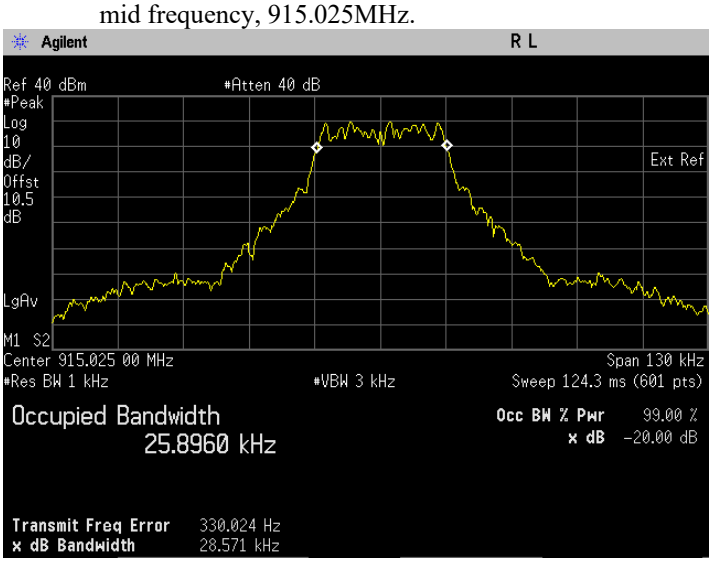
6.2.3. Test Data

Test Conditions		Test Frequency TX (GHz)	Results (MHz)		
Modulation Type	Voltage(V)		20dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)	Status
8FSK	3.70	902.525	28.310	25.701	Pass
		915.025	28.571	25.896	Pass
		927.475	28.633	26.143	Pass

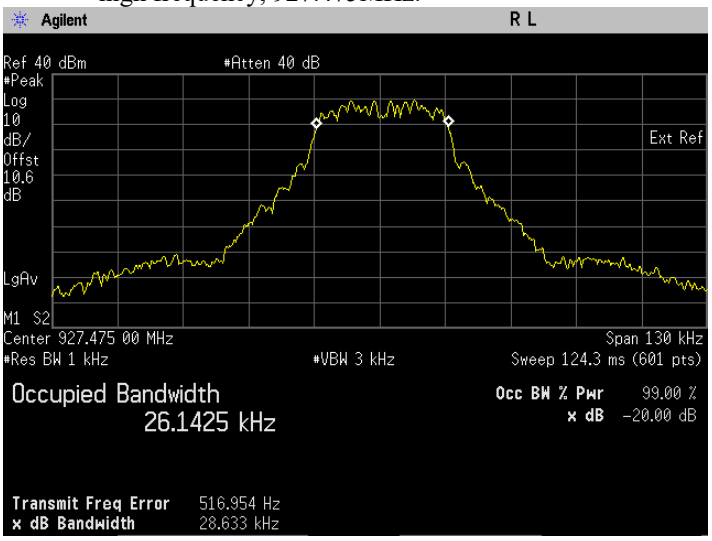
iv. The 20 dB BW & occupied bandwidth test with result at low frequency, 902.525MHz.



v. The 20 dB BW & occupied bandwidth test with result at mid frequency, 915.025MHz.

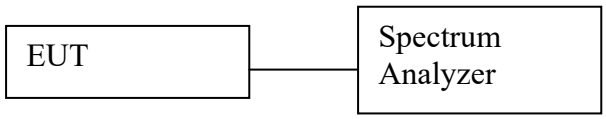


vi. The 20 dB BW & occupied bandwidth test with result at high frequency, 927.475MHz.



6.3. Band-edge Conducted Spurious Emission

6.3.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and keep the EUT in hopping mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 100 kHz
   b. VBW = 300 kHz
   c. SPAN = 4 MHz (Low channel) or 6MHz(High Channel)
   d. Detector mode = Peak
   e. Trace = Max hold
   f. Sweep = auto
e) Measure the captured band edge emission result and recording the plot.
f) Repeat above on EUT with hopping disable.
g) Repeat above procedure with other different test frequency.

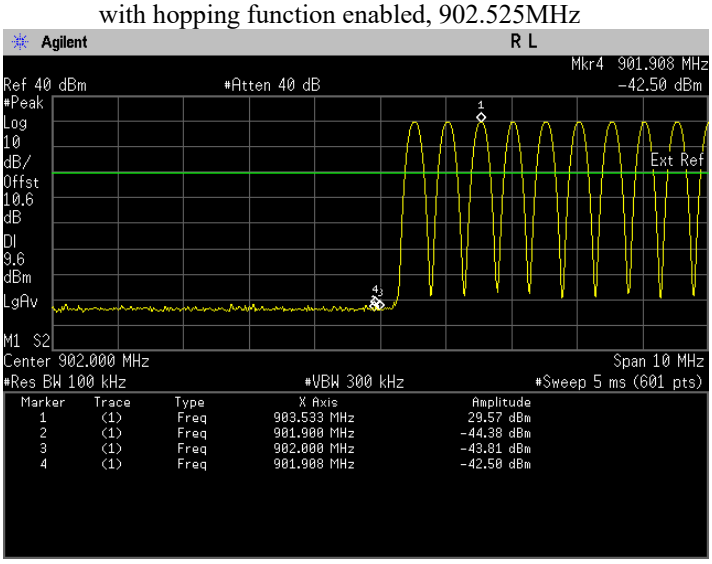
6.3.2. Test Limits

Normal Condition (25 º C)
Shall be at least 20 dB below the peak power.

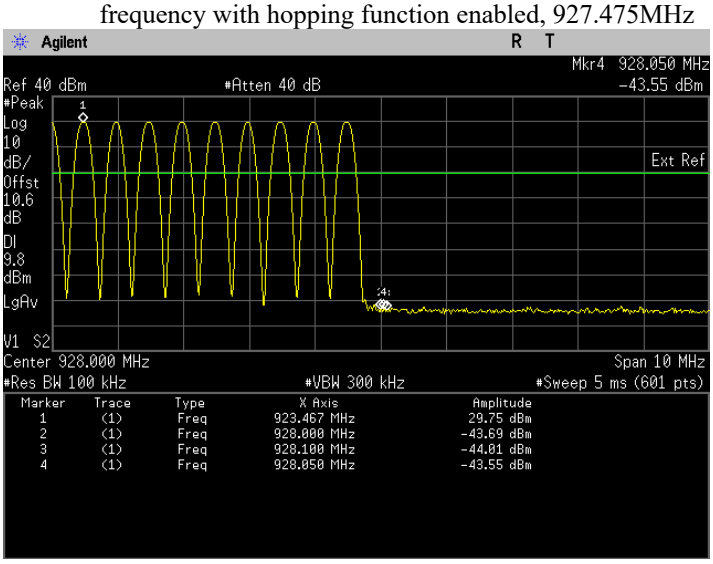
6.3.3. Test Result

Test Conditions		Hopping Method	Test Frequency(MHz)	Results	
Modulation	Voltage(V)			dB	Status
8FSK	3.70	Enabled (continuously)	902.525	-42.50	Pass
			927.475	-43.55	Pass
		Disabled (constantly)	902.525	-40.87	Pass
			927.475	-42.73	Pass

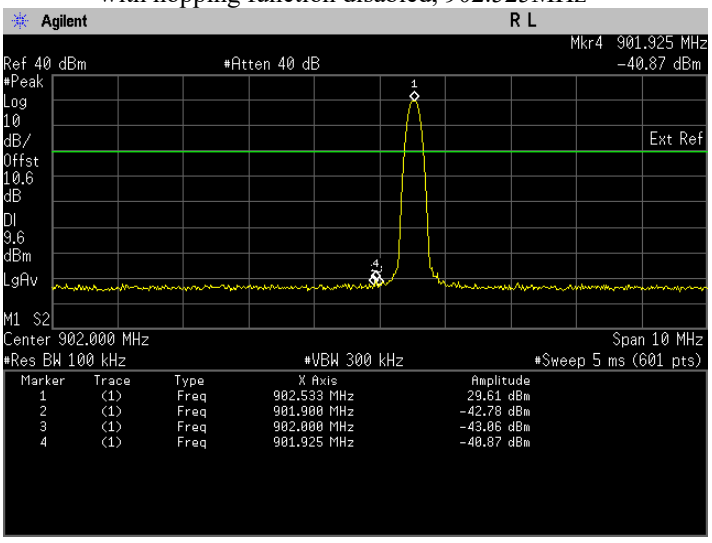
i. The lowest band edge emission at low carrier frequency with hopping function enabled, 902.525MHz



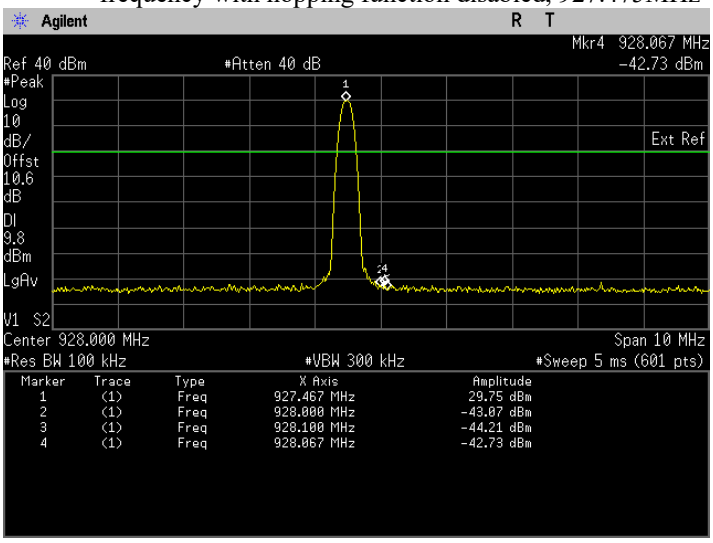
ii. The highest band edge emission at high carrier frequency with hopping function enabled, 927.475MHz



iii. The lowest band edge emission at low carrier frequency with hopping function disabled, 902.525MHz

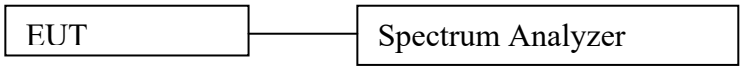


iv. The highest band edge emission at high carrier frequency with hopping function disabled, 927.475MHz



6.4. Dwell time on each channel

6.4.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and keep the EUT in hopping mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
    a. RBW = 10 kHz
    b. VBW = 30 kHz
    c. SPAN = Zero SPAN, center on hopping frequency
    d. Detector mode = Peak
    e. Trace = Max hold
    f. Sweep time = 10 second
    g. Sweep = Single
e) Measure total numbers of transmissions occur in 10 second and save the plot.
f) Change the setting of spectrum analyzer :
    a. RBW = 10 kHz
    b. VBW = 30 kHz
    c. Sweep time = sufficient to capture dwell time for 1 transmission
    d. Sweep = Single
g) Measure dwell time for 1 transmission and save the plot.
h) Calculate accumulate dwell time in a given period equal to number of hopping frequencies.
i) Repeat above procedure with different channel frequency of operation

6.4.2. Test Limits

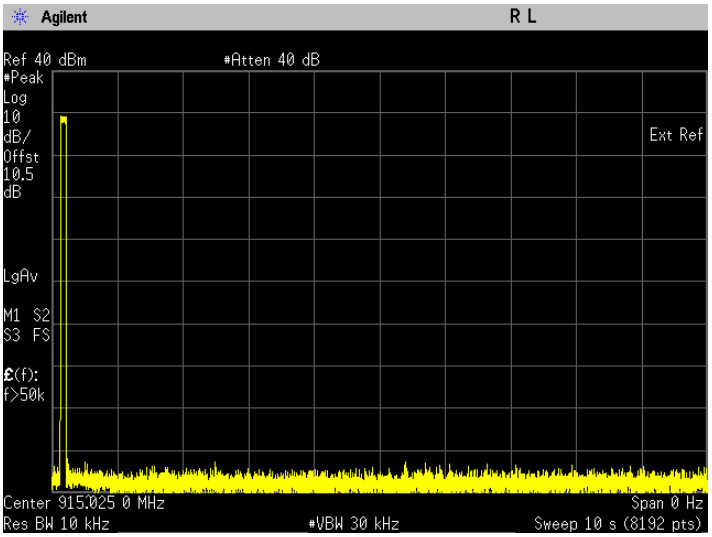
Normal Condition (25 º C)
≤ 0.4sec

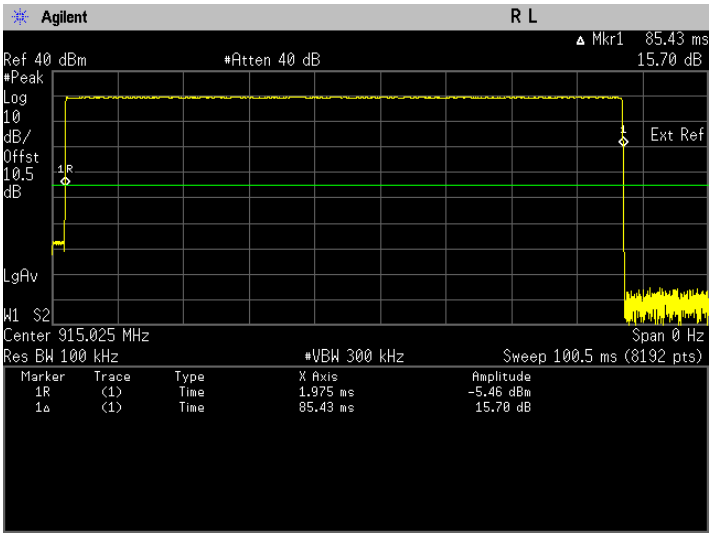
6.4.3. Test Result

Test Conditions			Results			
Modulation	Volt (V)	Test Frequency (MHz)	No. of transmission in 10s (a)	Dwell time in one transmission **(msec) (b)**	Total accumulate dwell time in 20s. **(msec) (c)**	Status
8FSK	3.70	915.025	1	85.427	170.854000	Pass

****Note:** Total dwell time in 20s, (c) = (a) x (b) x 2

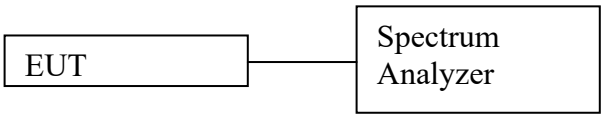
Dwell Time





6.5. Number of hopping Frequency

6.5.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and keep the EUT in hopping mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 10 kHz
   b. VBW = 10 kHz
   c. Detector mode = Peak
   d. Trace = Max hold
e) Allow the trace to stabilized & save the plot result from spectrum analyzer screen.
f) Count number of channel frequency in the operating.
g) Repeat above procedure for other test frequency.

6.5.2. Test Limits

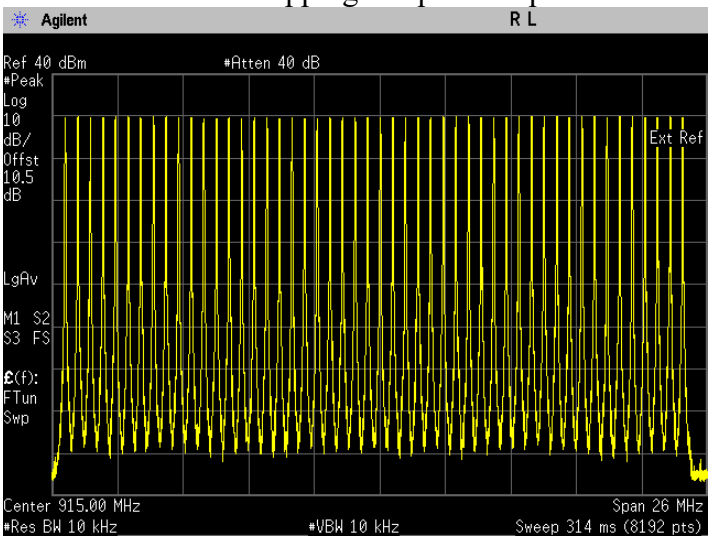
Normal Condition (25 º C)
≥ 50

6.5.3. Test Result

Voltage = 3.70V

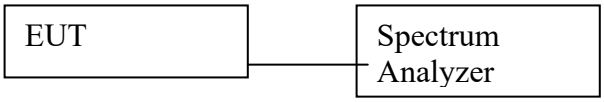
HOPSET	Sweep Range (MHz)	Results			
		Start Freq (MHz)	Last Freq (MHz)	No. of Hopping Frequencies	Status
1	902 - 928	902.525	927.025	50	Pass

i. Number of Hopping Frequencies per HOPSET



6.6. Channel Separation

6.6.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and keep the EUT in hopping mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 10 kHz
   b. VBW = 30 kHz
   c. SPAN = 1 MHz, center on test frequency
   d. Detector mode = Peak
   e. Trace = Max hold
   f. Sweep = auto
e) Measure the frequency different of these two adjacent channels with marker delta function & record the measurement results.
f) Repeat above procedure with different channel frequency of operation

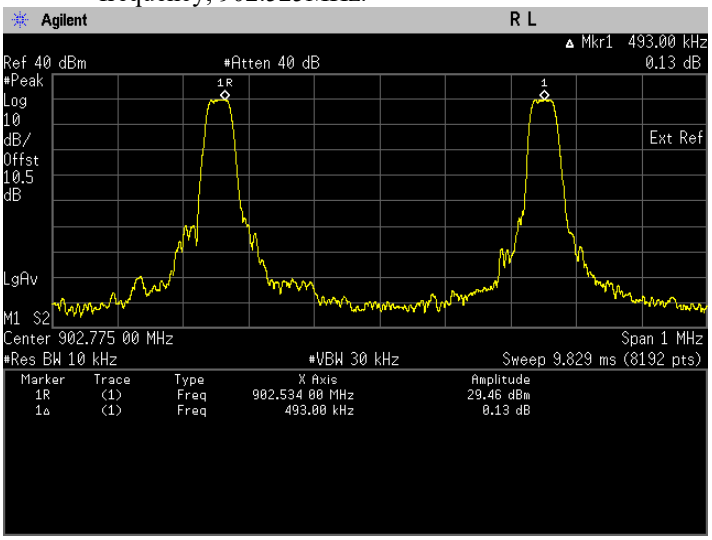
6.6.2. Test Limits

Normal Condition (25 º C)
At least 25kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

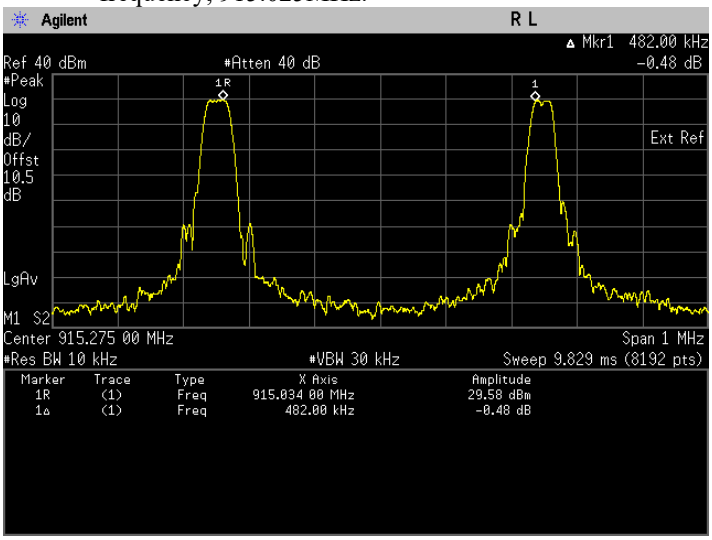
6.6.3. Test Result

Modulation	Voltage(V)	Test Frequency (MHz)	Test Data Adjacent Channel Separation (MHz)	Status
8FSK	3.70	902.525	0.493	Pass
		915.025	0.482	Pass
		927.475	0.505	Pass

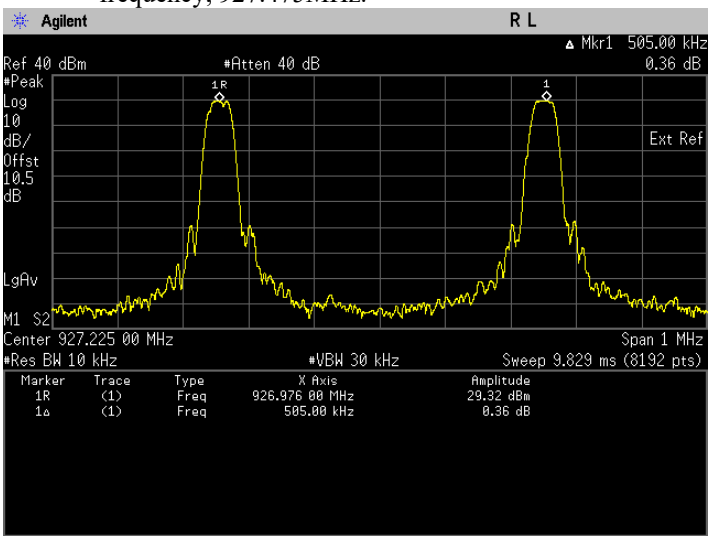
i. The Channel Separation test with result at low frequency, 902.525MHz.



ii. The Channel Separation test with result at mid frequency, 915.025MHz.

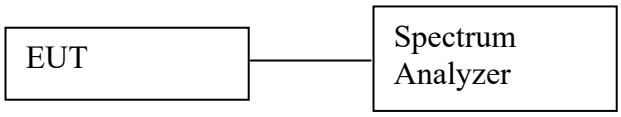


iii. The Channel Separation test with result at high frequency, 927.475MHz.



6.7. Conducted Spurious Emission

6.7.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and set EUT to transmit maximum data rate with hopping disable.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 100 kHz
   b. VBW = 300 kHz
   c. SPAN = Cover until 10th harmonic
   d. Detector mode = Peak
   e. AMPLITUDE → Scale/Div = 10 dB
   f. Trace = Max hold
   g. Sweep = auto
e) Measure the captured spurious emission result and recording the plot.
f) Repeat above procedure with different channel frequency of operation.

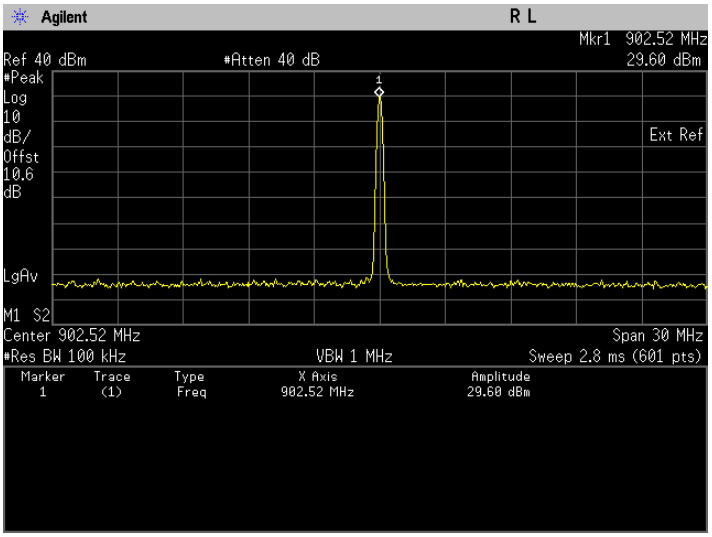
6.7.2. Test Limits

Normal Condition (25 º C)
Shall be at least 20 dB below for peak power.

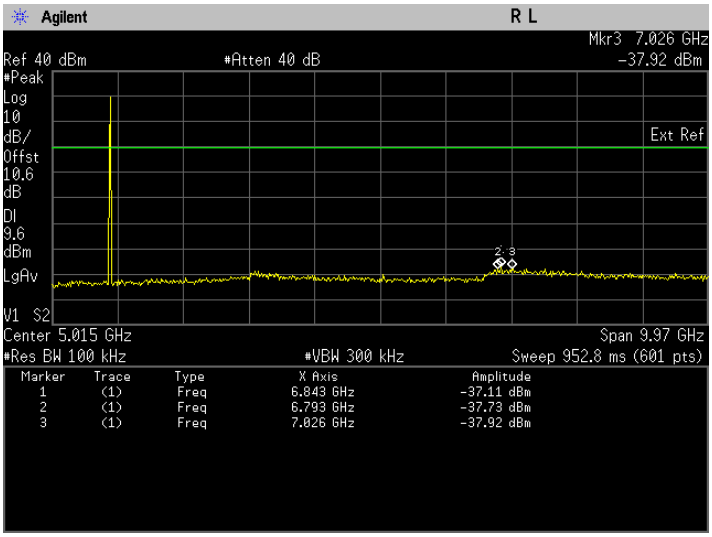
6.7.3. Test Data

Test Conditions		Test Frequency (MHz)	Results	
Modulation	Voltage(V)		Spurious Level	Status
8FSK	3.70	902.525	-37.107	Pass
		915.025	-37.569	Pass
		927.475	-37.233	Pass

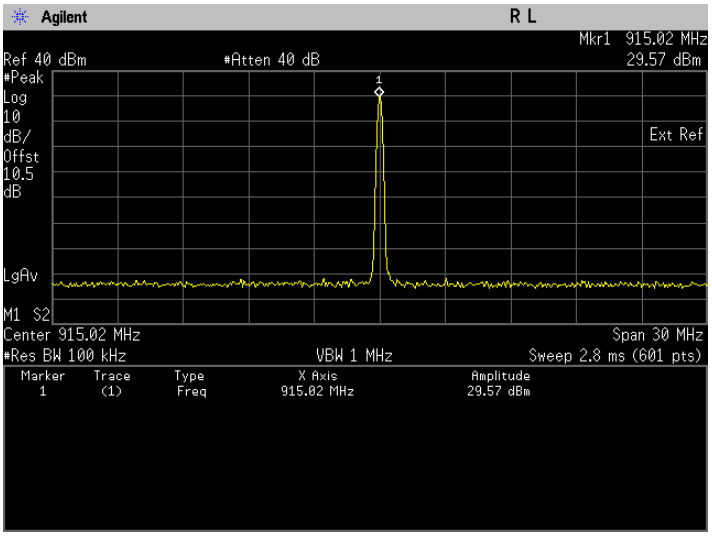
8FSK Modulation:



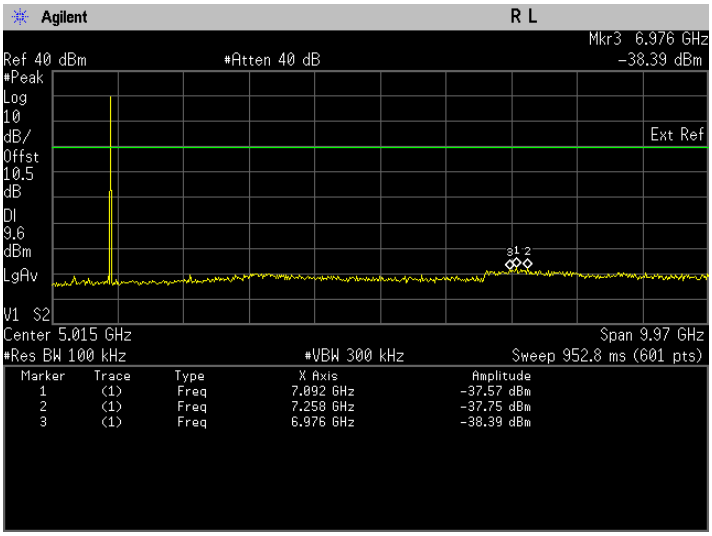
The high emission level within the assigned band at low carrier frequency.



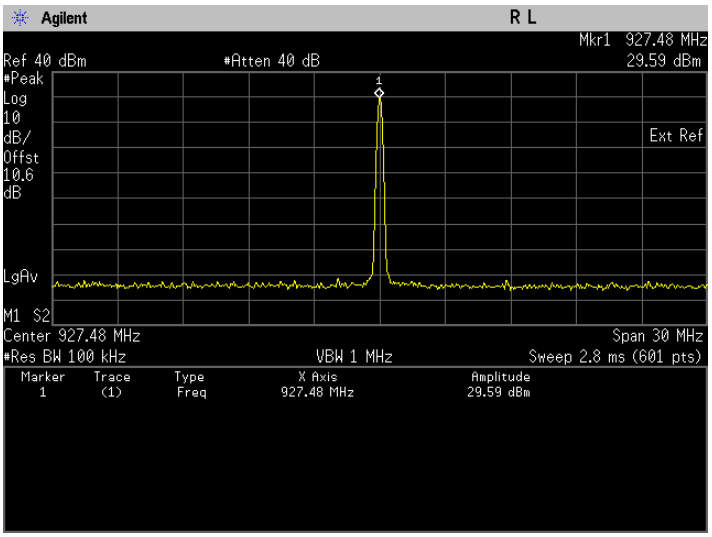
Spurious emission measurement in **30MHz – 10GHz** at low carrier frequency.



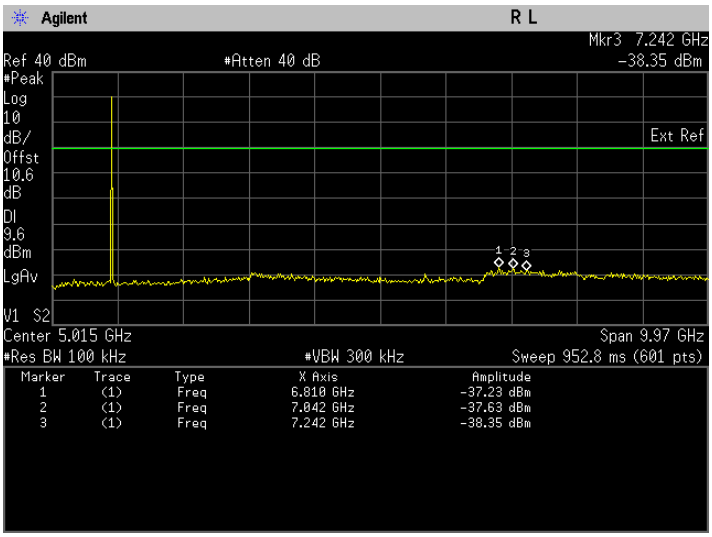
The high emission level within the assigned band at mid carrier frequency.



Spurious emission measurement in **30MHz – 10GHz** at mid carrier frequency.



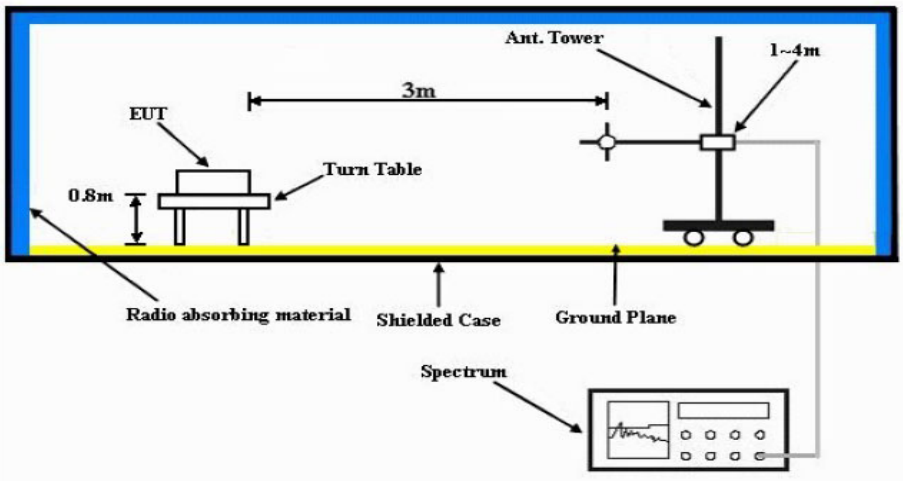
The high emission level within the assigned band at high carrier frequency.



Spurious emission measurement in **30MHz – 10GHz** at high carrier frequency.

6.8. Radiated Spurious Emission

6.8.1. Test Setup



a. The EUT is placed on the top of a rotating table 0.8m (<1Ghz) and 1.5m (>1Ghz) above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
b. The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
c. The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
c. All modes of operation were investigated and the worst-case emissions are reported.

6.8.2. Test Limits

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

NOTE:

a. The lower limit shall apply at the transition frequencies.
b. Emission level (dBuV/m) = 20 log Emission level (uV/m).
c. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

6.8.3. Test Data

Test: Bluetooth SAC Transmitter Radiated Emission
Model#: DLR110NBHLAA S/N: 19222AE6980 EMC SR ID#: 27179-EMC-00152
Battery: PMNN4578A Accessory: NA
Test Channel: Low Test Frequency: 902.5250 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane

Radiated Emission (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
768.1210	-	25.3621 *	-	-	110.2226	-	-	84.8605	-	130.2226
806.5290	-	23.5969 *	-	-	110.2226	-	-	86.6257	-	130.2226
825.5532	-	22.6965 *	-	-	110.2226	-	-	87.5261	-	130.2226
844.9759	-	26.7589 *	-	-	110.2226	-	-	83.4637	-	130.2226
864.0960	-	27.3304 *	-	-	110.2226	-	-	82.8922	-	130.2226
883.3130	-	37.4045 *	-	-	110.2226	-	-	72.8181	-	130.2226
941.1517	-	21.0236 *	-	-	110.2226	-	-	89.1990	-	130.2226
960.1370	29.2715 *	-	-	54.0000	-	-	24.7285	-	-	-
Horizontal Radiated Emission Result										
768.1100	-	36.0042 *	-	-	110.2226	-	-	74.2184	-	130.2226
806.5240	-	32.9795 *	-	-	110.2226	-	-	77.2431	-	130.2226
825.6650	-	31.8694 *	-	-	110.2226	-	-	78.3532	-	130.2226
844.9170	-	35.2318 *	-	-	110.2226	-	-	74.9908	-	130.2226
864.1350	-	34.0952 *	-	-	110.2226	-	-	76.1274	-	130.2226
883.3380	-	45.0147 *	-	-	110.2226	-	-	65.2079	-	130.2226
940.9040	-	30.3074 *	-	-	110.2226	-	-	79.9152	-	130.2226
960.1440	38.6448	-	-	54.0000	-	-	15.3552	-	-	-

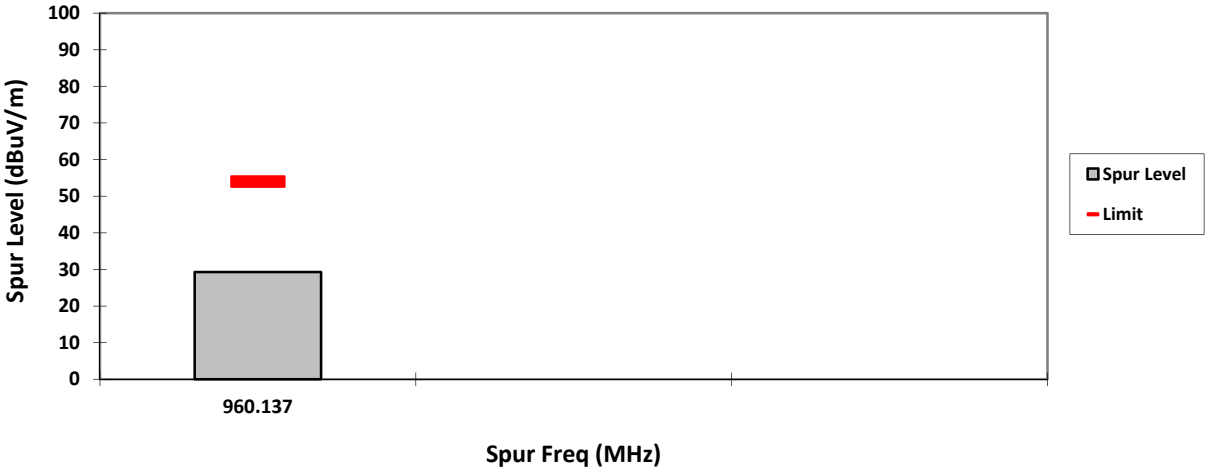
Remarks: Pass Result	Marginal Result	Fail Result

Temperature (degC): 23.5 Humidity (%): 69.6
Test Performed by: Rezza & Nazrin Test Date: Wed, 1 May, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

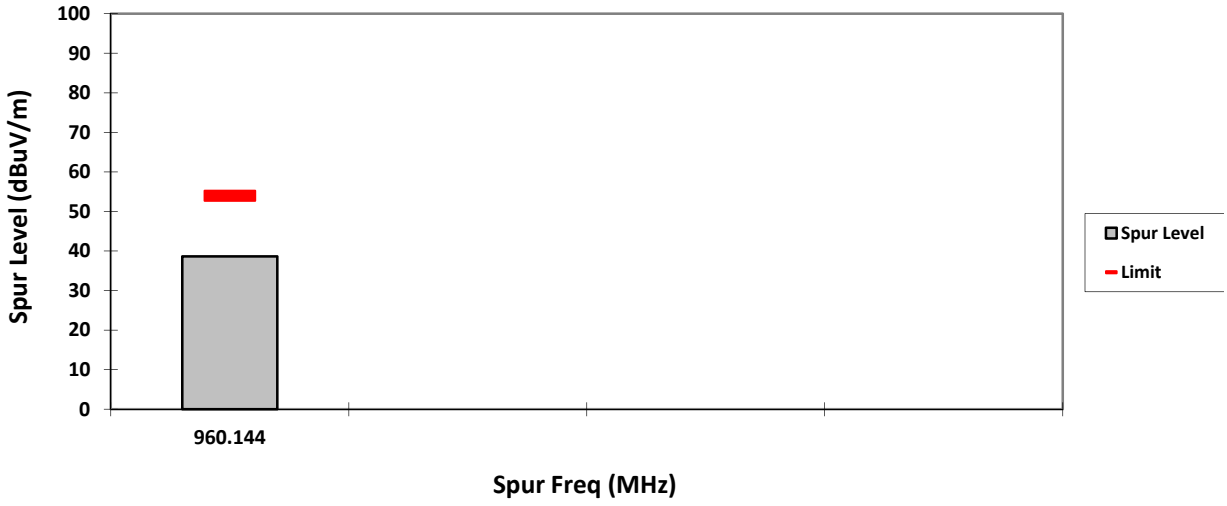
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

Duty cycle correction factor is determined using the formula 20 log (dwell time/100 ms), and for the MOTOtalk emission, this factor is:
Dwell time = (274 symbols)/(3200 symbols/sec)/(8 frequencies) = 10.70 ms
Correction factor 20 Log (10.70 ms/100 ms) = -19.41 dB

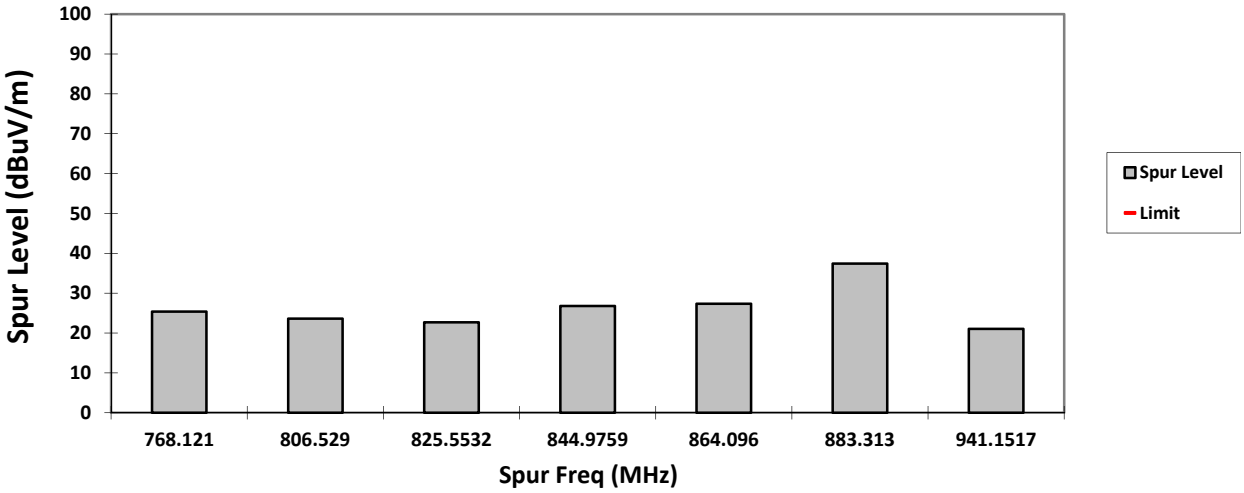
VERTICAL, QPK



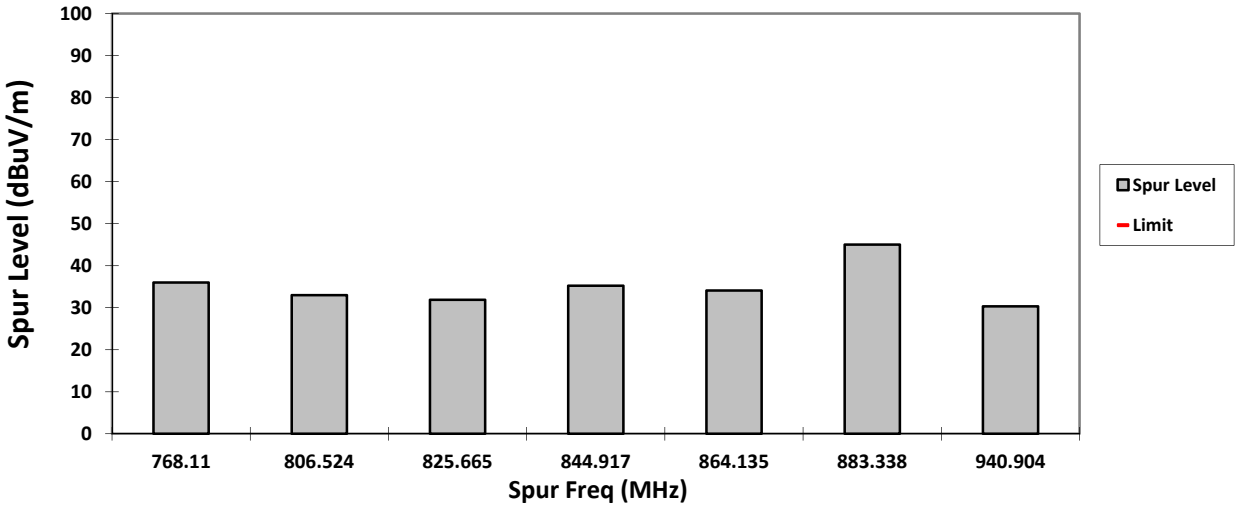
HORIZONTAL, QPK



VERTICAL, PK



HORIZONTAL, PK



Test: Bluetooth SAC Transmitter Radiated Emission
Model#: DLR110NBHLAA S/N: 19222AE6980 EMC SR ID#: 27179-EMC-00152
Battery: PMNN4578A Accessory: NA
Test Channel: Mid Test Frequency: 915.0250 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane

Radiated Emission (Mid Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
780.6380	-	24.8440 *	-	-	110.2226	-	-	85.3786	-	130.2226
787.1990	-	24.7097 *	-	-	110.2226	-	-	85.5129	-	130.2226
857.5049	-	22.1566 *	-	-	110.2226	-	-	88.0660	-	130.2226
876.2024	-	23.6008 *	-	-	110.2226	-	-	86.6218	-	130.2226
960.0459	22.1339 *	-	-	54.0000	-	-	31.8661	-	-	-
966.0670	27.3865 *	-	-	54.0000	-	-	26.6135	-	-	-
972.6320	22.9710 *	-	-	54.0000	-	-	31.0290	-	-	-
991.8060	22.2918 *	-	-	54.0000	-	-	31.7082	-	-	-
Horizontal Radiated Emission Result										
780.6420	-	33.5435 *	-	-	110.2226	-	-	76.6791	-	130.2226
787.2090	-	31.8925 *	-	-	110.2226	-	-	78.3301	-	130.2226
857.4270	-	32.3444 *	-	-	110.2226	-	-	77.8782	-	130.2226
876.6200	-	30.0061 *	-	-	110.2226	-	-	80.2165	-	130.2226
960.0019	29.6925 *	-	-	54.0000	-	-	24.3075	-	-	-
966.0400	31.1019 *	-	-	54.0000	-	-	22.8981	-	-	-
972.6410	28.6663 *	-	-	54.0000	-	-	25.3337	-	-	-
991.8260	32.9039 *	-	-	54.0000	-	-	21.0961	-	-	-

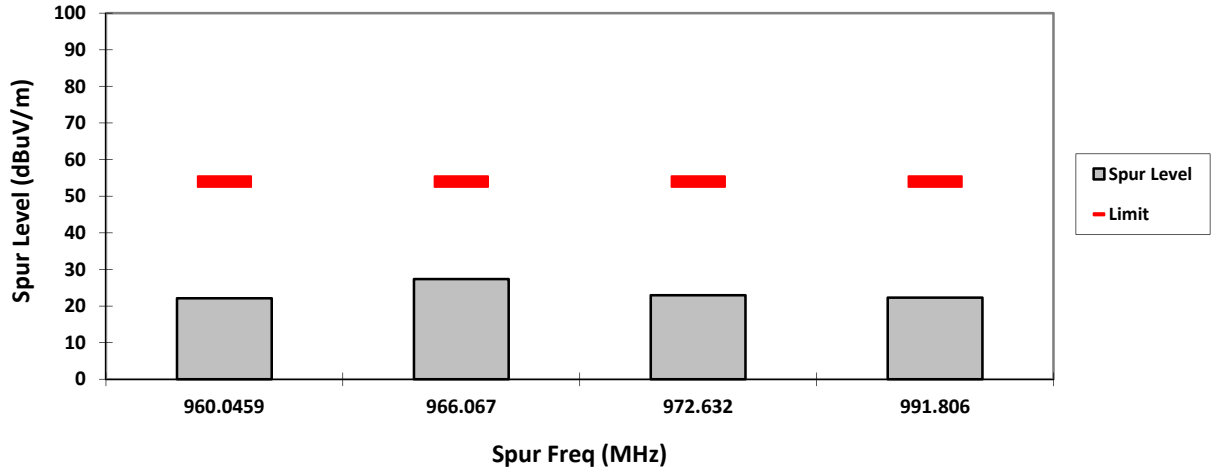
Remarks: Pass Result	Marginal Result	Fail Result

Temperature (degC): 23.5 Humidity (%): 69.6
Test Performed by: Rezza & Nazrin Test Date: Wed, 1 May, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

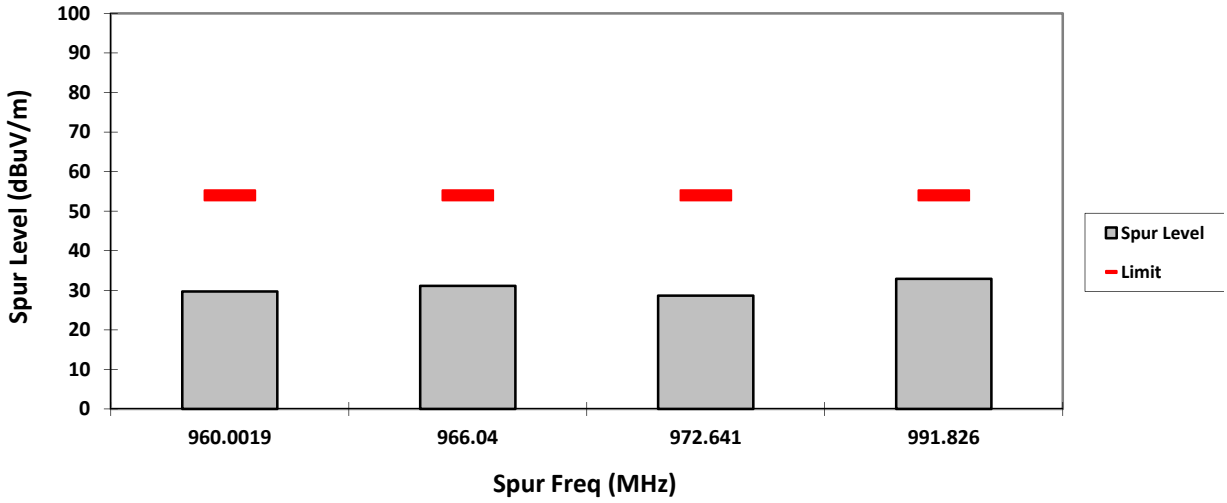
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

Duty cycle correction factor is determined using the formula 20 log (dwell time/100 ms), and for the MOTOtalk emission, this factor is:
Dwell time = (274 symbols)/(3200 symbols/sec)/(8 frequencies) = 10.70 ms
Correction factor 20 Log (10.70 ms/100 ms) = -19.41 dB

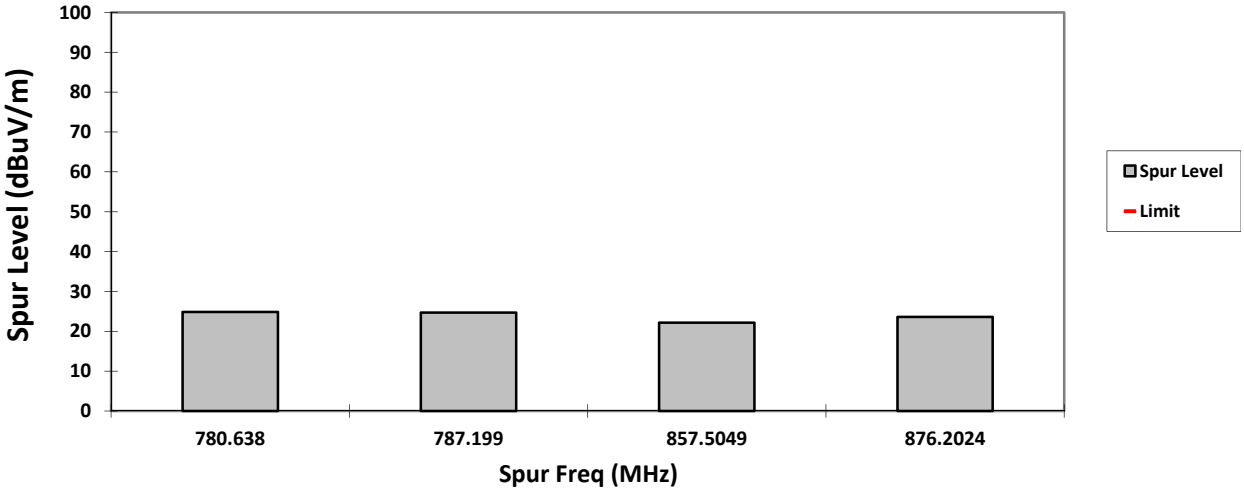
VERTICAL, QPK



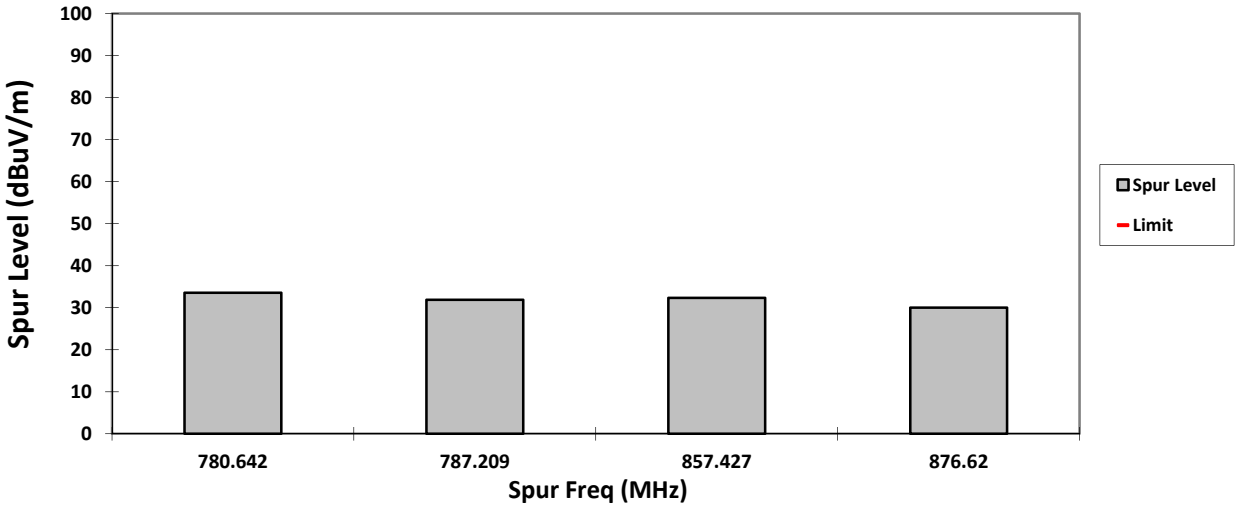
HORIZONTAL, QPK



VERTICAL, PK



HORIZONTAL, PK



Test: Bluetooth SAC Transmitter Radiated Emission
Model#: DLR110NBHLAA S/N: 19222AE6980 EMC SR ID#: 27179-EMC-00152
Battery: PMNN4578A Accessory: NA
Test Channel: High Test Frequency: 927.4750 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane

Radiated Emission (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
787.2150	-	24.4344 *	-	-	110.2226	-	-	85.7882	-	130.2226
812.2551	-	23.5621 *	-	-	110.2226	-	-	86.6605	-	130.2226
825.5700	-	23.3783 *	-	-	110.2226	-	-	86.8443	-	130.2226
831.5000	-	23.5560 *	-	-	110.2226	-	-	86.6666	-	130.2226
869.9030	-	25.9163 *	-	-	110.2226	-	-	84.3063	-	130.2226
946.6930	-	33.1307 *	-	-	110.2226	-	-	77.0919	-	130.2226
985.0211	22.3885 *	-	-	54.0000	-	-	31.6115	-	-	-
Horizontal Radiated Emission Result										
787.1930	-	31.6569 *	-	-	110.2226	-	-	78.5657	-	130.2226
812.2810	-	30.3174 *	-	-	110.2226	-	-	79.9052	-	130.2226
825.5940	-	30.9934 *	-	-	110.2226	-	-	79.2292	-	130.2226
831.4770	-	31.2555 *	-	-	110.2226	-	-	78.9671	-	130.2226
869.8570	-	30.9840 *	-	-	110.2226	-	-	79.2386	-	130.2226
946.6680	-	36.9200 *	-	-	110.2226	-	-	73.3026	-	130.2226
985.0650	35.7977	-	-	54.0000	-	-	18.2023	-	-	-

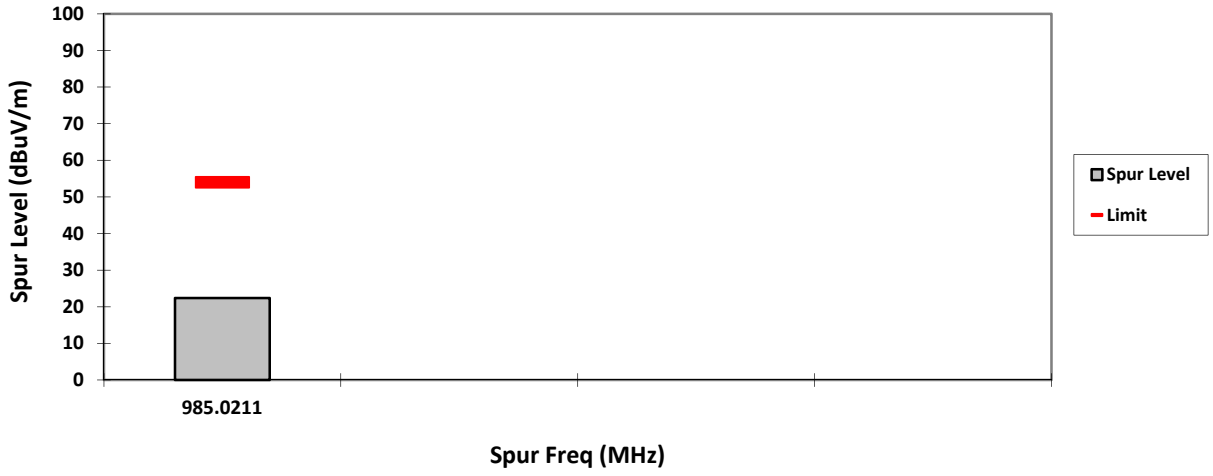
Remarks: Pass Result	Marginal Result	Fail Result

Temperature (degC): 23.5 Humidity (%): 69.6
Test Performed by: Rezza & Nazrin Test Date: Wed, 1 May, 2024
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

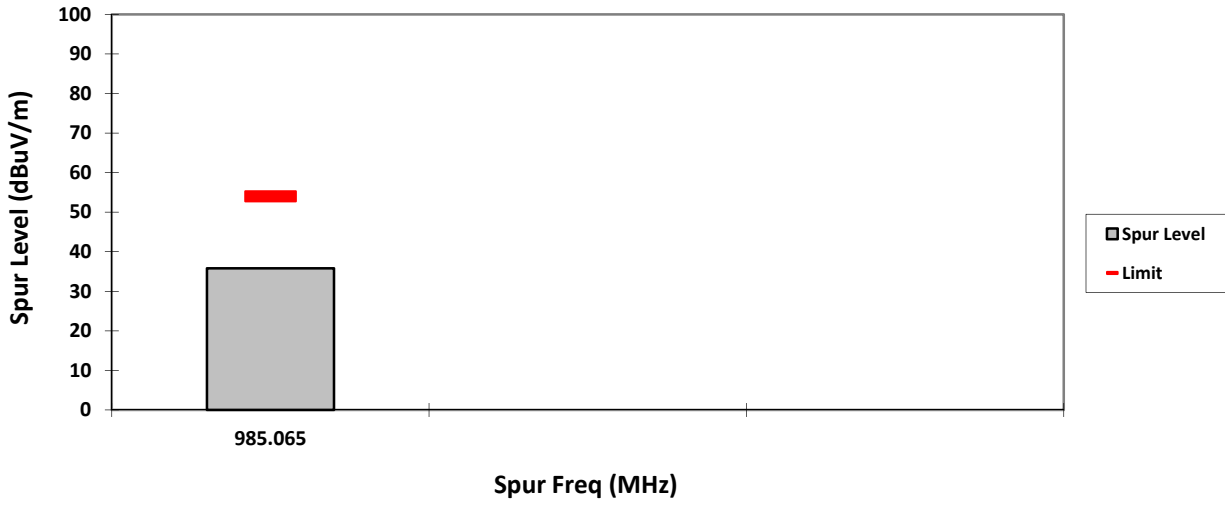
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

Duty cycle correction factor is determined using the formula 20 log (dwell time/100 ms), and for the MOTOtalk emission, this factor is:
Dwell time = (274 symbols)/(3200 symbols/sec)/(8 frequencies) = 10.70 ms
Correction factor 20 Log (10.70 ms/100 ms) = -19.41 dB

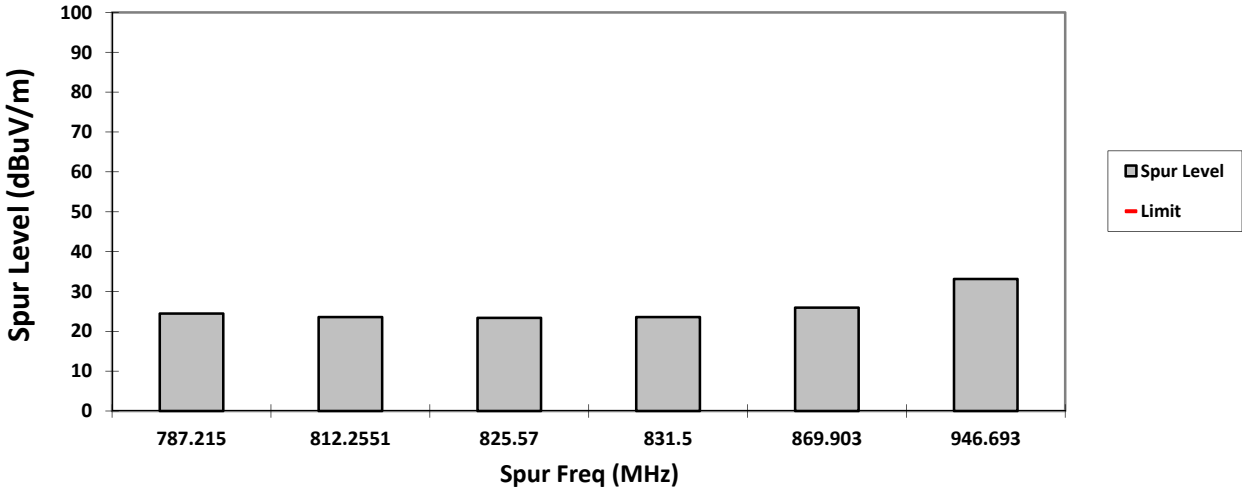
VERTICAL, QPK



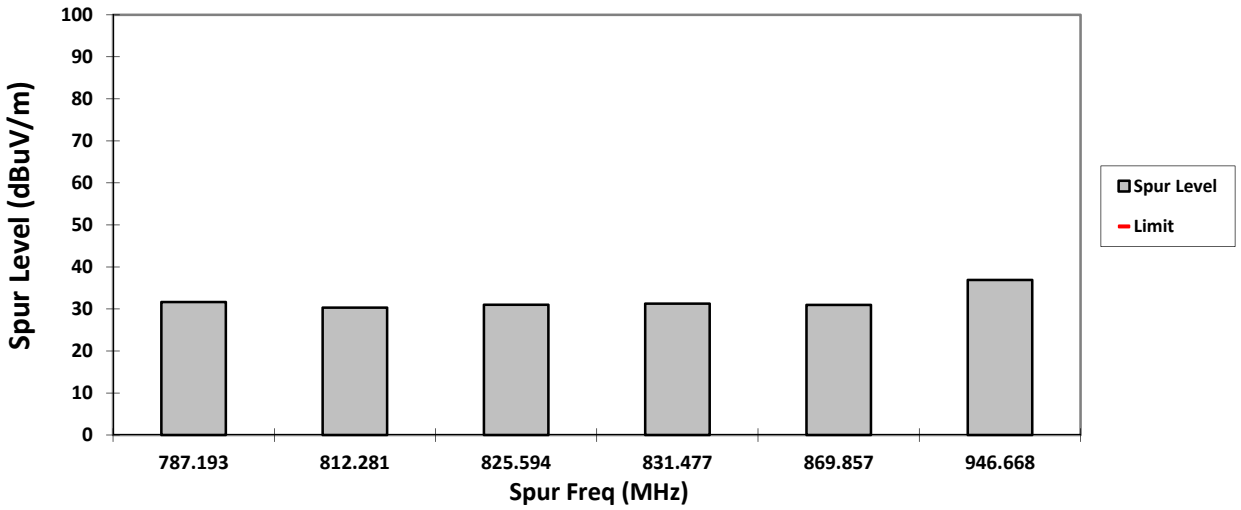
HORIZONTAL, QPK



VERTICAL, PK

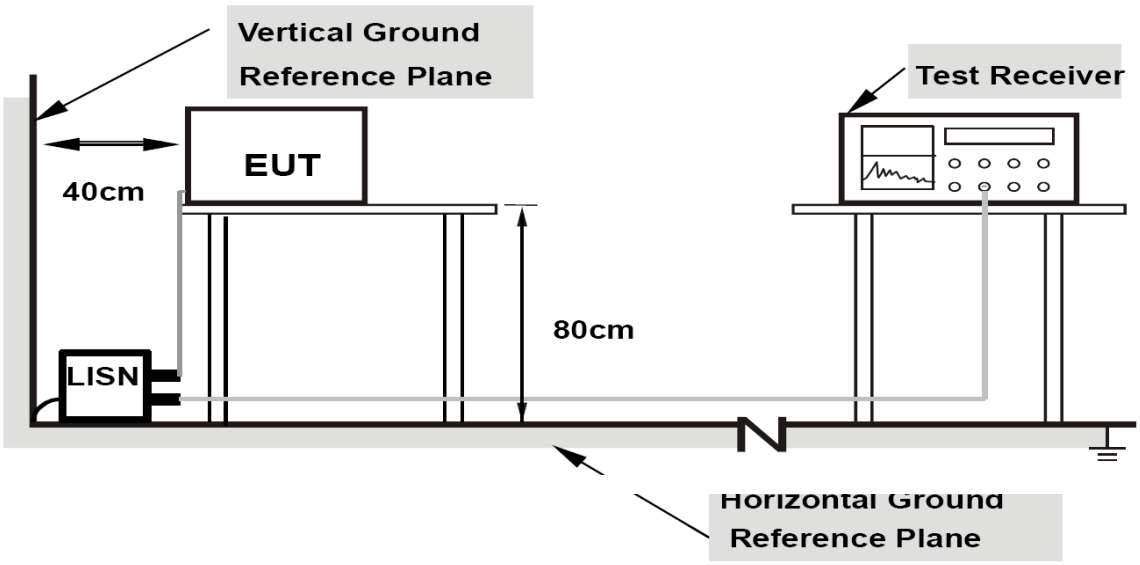


HORIZONTAL, PK



6.9. AC Powerline Conducted Emission

6.9.1. Test Setup



1) Tests were conducted for both Receive and Transmit Mode of the EUT.
2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
4) The frequency range from 150 kHz to 30MHz was measured.

6.9.2. Test Limits

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

Limits for conducted disturbance at the mains ports of class A ITE

Frequency range MHz	Limits dB(µV)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
NOTE The lower limit shall apply at the transition frequency.		

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

Limits for conducted disturbance at the mains ports of class B ITE

Frequency range MHz	Limits dB(µV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

6.9.3. Test Result

Not Applicable. Testing is not required, radio shall turn off during charging mode

~ End of Test Report ~